

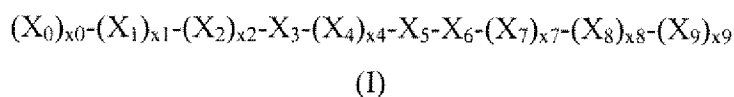
**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

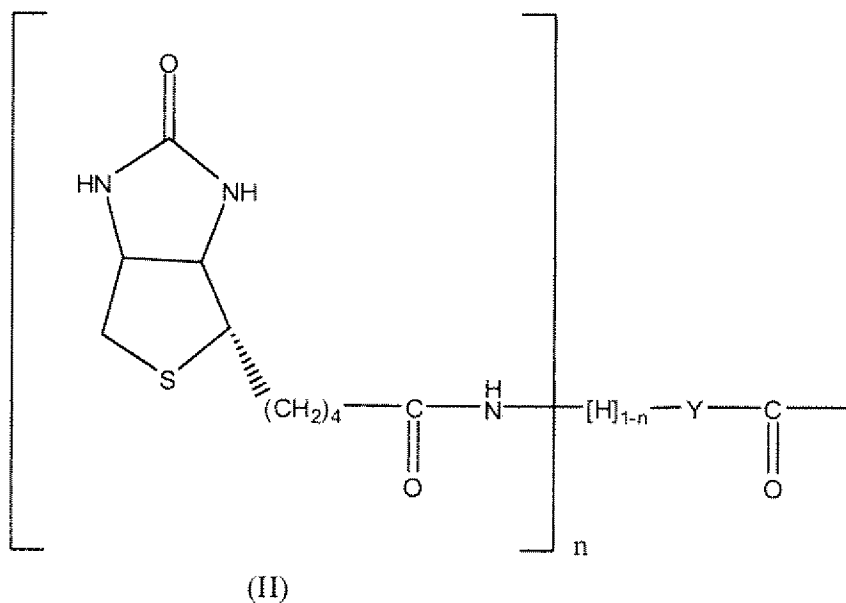
Claims 1-18 (canceled)

Claim 19 (new): A molecule of general formula (I), and the pharmaceutically acceptable salts thereof:



in which

- x0, x1, x2, x4, x7, x8 and x9 each represent, independently, an integer equal to 0 or to 1;
- X<sub>0</sub> represents a group chosen from those corresponding to formula (II):



in which Y represents a saturated or unsaturated, linear, branched or cyclic C<sub>1</sub>-C<sub>24</sub> alkyl group, n represents an integer chosen from 0 and 1;

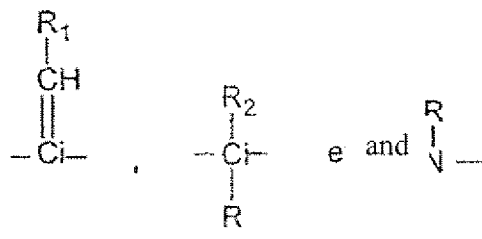
- X<sub>1</sub> and X<sub>3</sub> each represent a natural or synthetic amino acid in the L or D configuration, each comprising at least one hydroxyl function on its side chain;
- X<sub>2</sub> represents a natural or synthetic amino acid in the L or D configuration chosen from those comprising an alkyl side chain;
- X<sub>4</sub> represents a natural or synthetic amino acid in the L or D configuration which can be chosen from those comprising an aromatic side chain;
- X<sub>5</sub> represents an amino acid in the L or D configuration chosen from lysine, arginine, histidine, aspartic acid, asparagine, glutamic acid and glutamine;
- X<sub>6</sub> represents an amino acid in the L or D configuration which can be chosen from tyrosine, phenylalanine, leucine, isoleucine, alanine, *para*-benzoylphenylalanine and lysine;
- X<sub>7</sub> represents an amino acid in the L or D configuration which can be chosen from glycine, alanine, leucine, valine, asparagine and arginine;
- X<sub>8</sub> represents an amino acid in the L or D configuration which can be chosen from proline, valine, isoleucine and aspartic acid;
- X<sub>9</sub> represents an amino acid in the L or D configuration which can be chosen from serine, alanine, lysine, arginine and tryptophan;
- the bond between two successive amino acids X<sub>i</sub>-X<sub>i+1</sub>, denoted q<sub>i to i+1</sub>, i = 1 to 8 can be a peptide

$$\begin{array}{c} \text{O} \\ \parallel \\ \text{bond} - \text{C} - \text{NH} - \end{array}$$
 or a pseudopeptide bond chosen from: CO-O, CO-S, CO-CH<sub>2</sub>, CO-N(Me), NH-CO, CH=CH, CH<sub>2</sub>-CH<sub>2</sub>, CH<sub>2</sub>-S, CH<sub>2</sub>-O, CS-NH, CH<sub>2</sub>-NH, CO-CH<sub>2</sub>-NH, CO-NH-NH, CO-NH-N= and CO-N(NH<sub>2</sub>);

- the amino acids stated above X<sub>i</sub>, i = 1 to 9 being capable of comprising a modification of their α-carbon, denoted C<sub>i</sub>, i = 1 to 9 and bearing the side chain R of the amino acid, which modification consisting of the replacement of:



with a group chosen from:



the groups R and CH-R<sub>1</sub> representing the side chain of the amino acid and R<sub>2</sub> representing a C<sub>1</sub>-C<sub>6</sub> alkyl group; R-R<sub>2</sub> can constitute a ring,  
-the pseudopeptides of the invention also corresponding to the following conditions:  
x<sub>0</sub> is equal to 1  
or  
one of the bonds q<sub>i to i+1</sub>, i = 1 to 8 is a pseudopeptide bond  
or  
one of the C<sub>i</sub>, i = 1 to 9 comprises one of the modifications stated above.

Claim 20 (new): The molecule as claimed in claim 19, wherein one or more of the following conditions is verified:

at least one of the integers x<sub>0</sub>, x<sub>1</sub>, x<sub>2</sub>, x<sub>4</sub>, x<sub>7</sub>, x<sub>8</sub> and x<sub>9</sub> is equal to 1;  
X<sub>1</sub> and X<sub>3</sub>, which may be identical or different, are chosen from threonine and serine;  
X<sub>2</sub> is chosen from valine, leucine and isoleucine; or  
X<sub>4</sub> is chosen from phenylalanine, tryptophan, tyrosine and *para*-benzoylphenylalanine.

Claim 21 (new): The molecule as claimed in claim 20, comprising 4 to 8 amino acids.

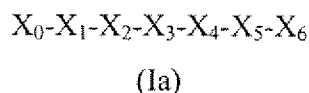
Claim 22 (new): A molecule as claimed in claims 19 to 21, wherein x<sub>0</sub> = 1 and the acyl chain -Y-CO- is a linear chain which is represented by the formula -C<sub>p</sub>H<sub>2p</sub>-CO-, p being an integer ranging from 1 to 23.

Claim 23 (new): The molecule as claimed in claim 22, wherein:  
-when n = 1, Y represents -C<sub>p</sub>H<sub>2p</sub>- and p can be 1, 2, 3, 4, 5, 6, 7 or 8; and  
-when n = 0, Y represents -C<sub>p</sub>H<sub>2p</sub>- and p can be an integer ranging from 5 to 23.

Claim 24 (new): The molecule as claimed in claim 19, wherein one or more of the following conditions are verified:

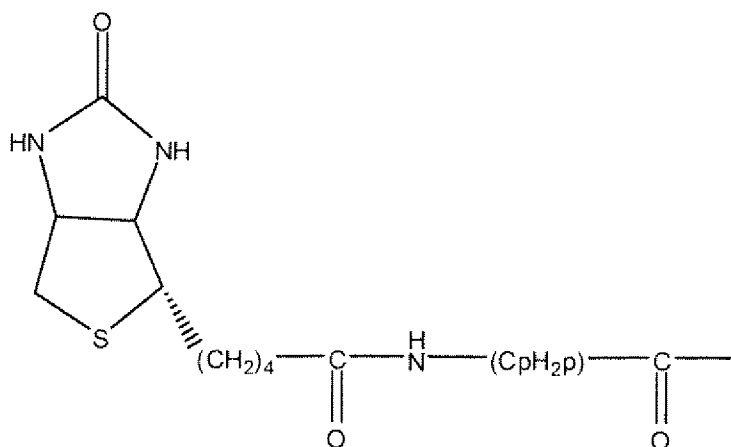
- at least one of  $X_1$  and of  $X_3$  represents threonine,
- $X_2$  is chosen from isoleucine and valine,
- $X_4$  is chosen from phenylalanine, tyrosine and *para*-benzoylphenylalanine, or
- at least 2 of the integers  $x_0, x_1, x_2, x_4, x_7, x_8$  and  $x_9$  are equal to 1.

Claim 25 (new): The molecule as claimed in claim 19, wherein the molecule corresponds to formula (Ia):



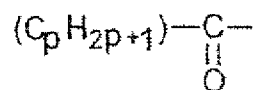
in which the bonds  $q_i$  to  $i+1$  between the amino acids  $X_i$  and  $X_{i+1}$ ,  $i = 1$  to 5 are peptide or pseudopeptide bonds.

Claim 26 (new): The molecule as claimed in claim 25, wherein  $X_0$  represents:



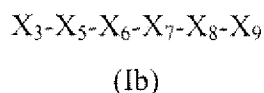
with  $p$  ranging from 1 to 8,  
and  $X_4$  represents a *para*-benzoylphenylalanine group.

Claim 27 (new): The molecule as claimed in claim 25, wherein  $X_0$  represents a group:



with p ranging from 3 to 23.

Claim 28 (new): The molecule as claimed in claim 19, wherein the molecule corresponds to formula (Ib):



in which:

-at least one of the bonds between two successive amino acids is a pseudopeptide bond,

or

-one of the  $\alpha$ -carbons of one of the amino acids is a modified  $\alpha$ -carbon.

Claim 29 (new): The molecule as claimed in claim 19, wherein the molecule is:

$CH_3-(C_nH_{2n})-CO-TVTYDY$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;

$CH_3-(C_nH_{2n})-CO-TISYDY$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;

$CH_3-(C_nH_{2n})-CO-TVSYKF$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;

$CH_3-(C_nH_{2n})-CO-TITFDY$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;

$CH_3-(C_nH_{2n})-CO-TITYKF$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;

$CH_3-(C_nH_{2n})-CO-TITYEY$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;

$CH_3-(C_nH_{2n})-CO-TITYDF$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;

$CH_3-(C_nH_{2n})-CO-TVTYKL$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;

$CH_3-(C_nH_{2n})-CO-TVTYKY$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;

$CH_3-(C_nH_{2n})-CO-TVTFKF$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;

$CH_3-(C_nH_{2n})-CO-TITYDL$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;

$CH_3-(C_nH_{2n})-CO-TVTFDY$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;

CH<sub>3</sub>-(C<sub>n</sub>H<sub>2n</sub>)-CO-TVTFKF with n=4, 6, 8, 10, 12, 14, 16, 18;  
CH<sub>3</sub>-(C<sub>n</sub>H<sub>2n</sub>)-CO-TVTYKF with n=4, 6, 8, 10, 12, 14, 16, 18;  
Biot-Ava-TVT-Bpa-KF;  
Biot-Ava-TVT-Bpa-KY;  
Biot-Ava-TVT-Bpa-KL;  
Biot-Ava-TVT-Bpa-DF;  
Biot-Ava-TVT-Bpa-DY;  
Biot-Ava-TVT-Bpa-DL;  
Biot-Ava-TIT-Bpa-KF;  
Biot-Ava-TIT-Bpa-KY;  
Biot-Ava-TIT-Bpa-KL;  
Biot-Ava-TIT-Bpa-DF;  
Biot-Ava-TIT-Bpa-DY;  
Biot-Ava-TIT-Bpa-DL;  
Biot-Ava-TVT-Bpa-EF;  
Biot-Ava-TVT-Bpa-EY;  
Biot-Ava-TVT-Bpa-EL;  
Biot-Ava-TIT-Bpa-EF;  
Biot-Ava-TIT-Bpa-EY;  
Biot-Ava-TIT-Bpa-EL;  
Biot-Ava-TVT-Bpa-NF;  
Biot-Ava-TVT-Bpa-NY;  
Biot-Ava-TVT-Bpa-NL;  
Biot-Ava-TIT-Bpa-NF;  
Biot-Ava-TIT-Bpa-NY;  
Biot-Ava-TIT-Bpa-NL;  
TNL\*GPS;  
SEK\*RVW;  
TRA\*LVR;  
SNL\*NDA; or

THI\*VIK;

wherein Biot represents a biotinyl group,

Ava represents a  $\delta$ -aminovaleric acid group,

Bpa represents a *para*-benzoylphenylalanine group; and

wherein \* represents:

- a bond chosen from ester, thioester, keto methylene, keto methyleneamino, N-methylamide, inverse amide, Z/E vinylene, ethylene, methylenethio, methyleneoxy, thioamide, methyleneamino, hydrazino, carbonylhydrazone and N-amino bonds, or
- the presence of an aza-amino acid as a substitution for one of the amino acids adjacent to \*.

Claim 30 (new): The molecule as claimed in claim 19 coupled on its C-terminal end and/or on its N-terminal end with another molecule which promotes its bioavailability.

Claim 31 (new): A composition comprising the molecule as claimed in claim 19 in a pharmaceutically acceptable carrier.

Claim 32 (new): A method for prevention and treatment of a disorder or a pathology associated with proteasome activity comprising administering to an animal in need thereof a molecule as claimed in claim 19.

Claim 33 (new): The method of claim 32, wherein the disorder or pathology is selected from: cancers involving hematological tumors or solid tumors; autoimmune diseases; AIDS; inflammatory diseases; cardiac pathologies; pathologies associated with the consequences of ischemic processes at the myocardial, cerebral or pulmonary level; allograft rejection; amyotrophy; cerebral strokes; traumas; burns; and pathologies associated with aging.

Claim 34 (new): A method for radiosensitizing a tumor comprising contacting the tumor with a compound as claimed in claim 19.

Claim 35 (new): A cosmetic and/or dermatological composition comprising a molecule as claimed in claim 1, in a cosmetically and/or dermatologically acceptable carrier.

Claim 36 (new): A cosmetic process for preventing or treating the appearance of effects of chronological skin aging and/or of photoaging, comprising applying to skin the molecule as claimed claim 19 in a cosmetically acceptable carrier.

Claim 37 (new): The molecule as claimed in claim 21, wherein the molecule comprises 5 to 7 amino acids.

Claim 38 (new): The molecule as claimed in claim 21, wherein the molecule comprises 6 amino acids.

Claim 39 (new): The molecule as claimed in claim 24, wherein at least 3 of the integers  $x_0$ ,  $x_1$ ,  $x_2$ ,  $x_4$ ,  $x_7$ ,  $x_8$  and  $x_9$  are equal to 1.

Claim 40 (new): The molecule as claimed in claim 26, wherein  $p$  ranges from 2 to 6.

Claim 41 (new): The molecule as claimed in claim 27, wherein  $p$  ranges from 5 to 19.

Claim 42 (new): The method as claimed in claim 32, wherein the animal is a human.

Claim 43 (new): The method of claim 32, wherein the pathologies associated with aging Alzheimer's disease and Parkinson's disease.

Claim 44 (new): A method for modulating the proteasome of a cell comprising administering the molecule of claim 19 to a cell.

Claim 45 (new): The molecule as claim in claim 19, wherein  $X_1$  and  $X_3$  both represent threonine.